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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,374	01/16/2004	Dean G. Hafeman	THI-003	6709
51414	7590	05/10/2006	EXAMINER	
GOODWIN PROCTER LLP PATENT ADMINISTRATOR EXCHANGE PLACE BOSTON, MA 02109-2881			BOWERS, NATHAN ANDREW	
			ART UNIT	PAPER NUMBER
			1744	

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/759,374

Applicant(s)

HAFEMAN, DEAN G.

Examiner

Nathan A. Bowers

Art Unit

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 32-35 is/are pending in the application.
- 4a) Of the above claim(s) 1-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 32-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 040306, 060805, 120904, 050304, 031904
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 32-35 in the reply filed on 03 April 2006 is acknowledged.

Claims 1-31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 03 April 2006.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1) Claims 32-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Jensen (US 20040077075).

With respect to claim 32, Jensen discloses a microfluidic system for monitoring cell activity. The system comprises a cell duct plate defining at least one cell duct therein, a porous membrane having a first side bounding the cell duct, and a flow channel bound by a second side of the porous membrane. Nutrients present in the flow channel are allowed to diffuse through the membrane into the cell duct, and products

formed by the cells are allowed to diffuse into the flow channel. This is disclosed in paragraphs [0067]-[0073].

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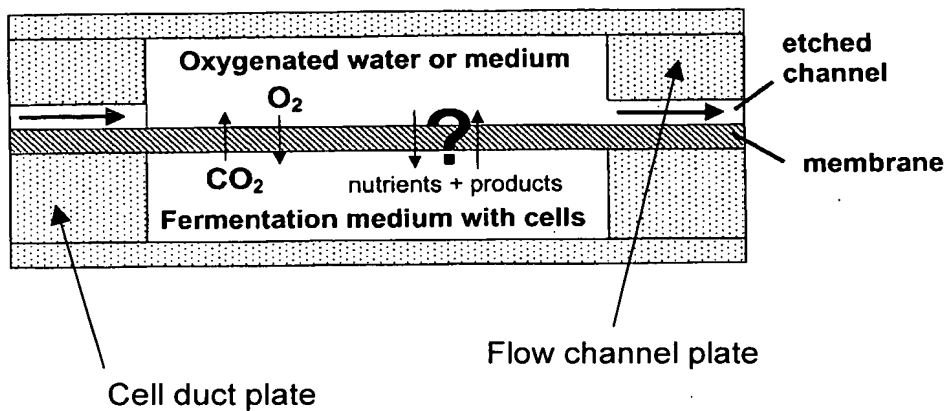


FIGURE 2B

Paragraphs [0079] and [0087] indicate that fluids are moved through the flow channel using a pump, and that a computer system is provided for bioprocess control. It is well known in the art to control the operation of pumps in this way. Furthermore, Jensen discloses in paragraphs [0080] and [0110]-[0116] the use of sensors to detect cells and cell products during the culturing process.

With respect to claims 33-35, Jensen discloses the apparatus in claim 32 wherein the sensors can be either electrochemical or luminescence detectors. Jensen teaches in paragraphs [0114]-[0125] and [0128]-[0130] that it is possible to monitor pH, dissolved oxygen concentration, and biomass using luminescence detectors that comprise a fluorescent reagent, an excitation light source, and a detector. In paragraphs [0080] and [0133], Jensen indicates it is also possible to use in the present

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invention electrochemical detectors which implement electrodes adapted to measure pH and dissolved oxygen.

2) Claims 32-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Freeman (US 6653124).

Freeman discloses a system for monitoring cell activity. The system comprises a cell duct plate defining at least one cell duct (Figure 3A:12), a flow channel plate defining at least one flow channel (Figure 3A:44), and a porous membrane (Figure 3A:40) bounding the cell duct and flow channel. The membrane allows for the diffusion of cell products and nutrients, but inhibits movement of the cells. This is disclosed in column 23, line 54 to column 25, line 33. Column 20, lines 59-67 disclose the use of controller regulated micropumps adapted to induce fluid flow through the channels of the invention. Column 11, line 50 to column 12, line 43 teaches the use of luminescence detectors adapted to detect biomass during cell culturing procedures. Freeman indicates that the use of fluorescent reagents, excitation light, and light detectors is well known in the art and pertinent to the detection of cells in the disclosed invention.

Conclusion

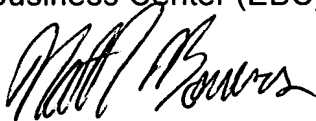
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Jury (US 20040121454) reference discloses the state of the art regarding microfluidic bioreactors.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan A. Bowers whose telephone number is (571) 272-8613. The examiner can normally be reached on Monday-Friday 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



NAB



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